INSTRUCTIONS FOR INDUSTRIAL WORKSHEET 11.0 COOLING WATER INTAKE INFORMATION

This worksheet **is required** for all TPDES permit applications if the facility withdraws or proposes to withdraw surface water for cooling purposes. Completion of this worksheet satisfies the application requirements in 40 CFR §§ 122.21(r)(2), (3), (5), and (8). Application waivers in accordance with 40 CFR § 125.95 will not be applied to Worksheet 11.0.

Indicate by checking yes or no if the facility withdraws or proposes to withdraw surface water for cooling purposes. If **yes**, complete this worksheet; otherwise, stop here.

1. COOLING WATER SYSTEM DATA

- a. Table 19 must be completed with the following information regarding the facility cooling water system.
 - Total DIF Enter the total DIF for the cooling water system in MG. The total DIF is the value assigned to the maximum instantaneous rate of flow of water the cooling water intake system is capable of withdrawing from a source waterbody. The facility's cooling water system total DIF may be adjusted to reflect permanent changes to the maximum capabilities of the cooling water intake system to withdraw cooling water, including pumps permanently removed from service, flow limit devices, and physical limitations of the piping. The cooling water system's total DIF does not include values associated with emergency and fire suppression capacity or redundant pumps (e.g., back-up pumps).
 - Total AIF Enter the total AIF for the cooling water system in MG. The total AIF is the average volume of water withdrawn on an annual basis by all facility CWIS(s) over the past three years (a minimum of 36 months), measured at a location within the CWIS that the Director deems appropriate. The calculation of actual intake flow includes days of zero flow. The cooling water system total AIF does not include flows associated with emergency and fire suppression capacity.
 - Intake Flow Uses Enter the intake flow uses for the cooling water system. Provide the percent contribution of intake flow uses for contact cooling water, non-contact cooling water, process uses, and other uses. The percentages must total 100%.
 - Annual Operation Enter the number of days per year the cooling water system is operational. Use the last three years of operational data to calculate the average.
- b. Include the following information as an attachment to the application and provide the attachment number in the space provided in the application.
 - i. A narrative description of the design and operation of the facility's cooling water system. This description must include seasonal changes in operation, if applicable, and information regarding reductions in total water withdrawals including cooling water intake flow reductions already achieved through minimization of process water withdrawals.
 - ii. A flow distribution and water balance diagram that includes all sources of water to the facility, recirculating flows, and discharges.
 - iii. A full size, 7.5-minute USGS Topographic Quadrangle Map(s) with the location of each CWIS and any intake pipe(s) clearly marked and assigned an identification number. Provide the latitude and longitude for each CWIS and any intake pipe(s) on the map. The USGS Topographic Quadrangle Map(s) must be in color, have a scale, and have the latitude and longitude on all four sides. You can obtain a full size, 7.5-minute USGS topographic quadrangle map by calling the USGS at (888) 275-8747.
 - iv. A description of water reuse activities, if applicable, which include any cooling water reused as process water, process water reused for cooling, and/or the use of gray water for cooling; a

description of reductions in total water withdrawals including cooling water intake flow reductions already achieved through minimized process water withdrawals; a description of any cooling water that is used in a manufacturing process either before or after it is used for cooling, including other recycled process water flows; the proportion of the source waterbody withdrawn (on a monthly basis).

- v. Design drawings of the cooling water system and engineering calculations prepared by a qualified professional and data to support the information provided in above item a.
- vi. Previous year (a minimum of 12 months) of cooling water system total AIF data, measured at a frequency of 1/day, on days of operation.

2. COOLING WATER INTAKE STRUCTURE(S) DATA

- a. Table 20 must be completed with the following information regarding each individual CWIS that provides cooling water to the facility's cooling water system (this includes primary and make-up CWIS(s))
 - CWIS ID Enter the CWIS ID number. The CWIS ID number should correspond to each CWIS identified on the USGS map provided for item 1.b. above.
 - Owner Provide the name of the owner of the CWIS(s).
 - Operator Provide the name of the operator of the CWIS(s).
 - Public Water Supplier Indicate by checking yes or no if the CWIS(s) is owned and/or operated by a public water supplier.
 - Public Water Supplier Registration No. If the CWIS(s) is owned and/or operated by a public water supplier, enter the PWS Registration number in the space provided in the application and stop here. Otherwise enter N/A and continue.
 - The PWS Registration No. can be obtained on the TCEQ's <u>Central Registry</u> search page at http://www15.tceq.texas.gov/crpub/index.cfm?fuseaction=addnid.IdSearch.
 - Independent Supplier Indicate by checking yes or no if the CWIS is owned and/or operated by an independent supplier.
 - TPDES Permit If the CWIS(s) is owned and/or operated by an independent supplier, enter the independent supplier's TPDES Permit number in the space provided in the application, otherwise enter N/A, and continue.
 - ≥25% AIF Indicate by checking yes or no if the facility utilizes 25% or more of the Independent supplier's CWIS AIF for cooling purposes.
 - Independent Supplier AIF Enter the independent supplier's CWIS AIF in MG. The independent supplier's CWIS AIF means average volume of water withdrawn on an annual basis by the independent supplier's CWIS(s) over the past three years (a minimum of 36 months). The independent supplier's AIF is measured at a location within the CWIS that the Director deems appropriate. The calculation of actual intake flow includes days of zero flow. The independent supplier's CWIS AIF does not include flows associated with emergency and fire suppression capacity.
 - CWIS DIF Provide the DIF for the CWIS(s) in MG. The CWIS DIF mean means the value assigned during the CWIS design to the maximum instantaneous rate of flow of water the cooling water intake system is capable of withdrawing from a source waterbody. The facility's CWIS DIF may be adjusted to reflect permanent changes to the maximum capabilities of the cooling water intake system to withdraw cooling water, including pumps permanently removed from service, flow limit devices, and physical limitations of the piping. CWIS DIF does not include values

- associated with emergency and fire suppression capacity or redundant pumps (i.e., back-up pumps).
- CWIS AIF Provide the AIF for the CWIS(s) in MG. The CWIS AIF means average volume of
 water withdrawn on an annual basis by the CWIS over the past three years (a minimum of 36
 months). The CWIS AIF is measured at a location within the CWIS that the Director deems
 appropriate. The calculation of actual intake flow includes days of zero flow. CWIS AIF does not
 include flows associated with emergency and fire suppression capacity.
- Intake Flow Uses Enter the cooling water structure intake flow uses. Provide the percent contribution of intake flow uses for contact cooling water, non-contact cooling water, process uses, and other uses. The percentages must total 100%.
- Daily Operation Enter the number of hours per day the CWIS is operational. Use the last three years (a minimum of 36 months) of operational data to calculate the average.
- Annual Operation Enter the number of days per year the CWIS is operational. Use the last three years (a minimum of 36 months) of operational data to calculate the average.
- Latitude Provide the latitude of the CWIS in degrees, minutes, and seconds to the nearest second or decimal degrees to at least six places. Visit the TCEQ Website at https://www.tceq.texas.gov/gis/sqmaview.html for help obtaining the latitude.
- Longitude Provide the longitude of the CWIS in degrees, minutes, and seconds to the nearest second or decimal degrees to at least six places. Visit the TCEQ Website at https://www.tceq.texas.gov/gis/sqmaview.html for help obtaining the longitude.
- b. Include the following information as an attachment to the application and provide the attachment number in the space provided in the application.
 - i. A narrative description of existing or proposed impingement and entrainment technologies or operation measures, and a summary of their performance, including, but not limited to, reductions in impingement mortality and entrainment due to intake location and reductions in total water withdrawals and usage.
 - ii. A narrative description of the configuration and operation, including any seasonal changes, for each CWIS and where it is located in the waterbody and in the water column.
 - iii. Design drawings and engineering calculations of each CWIS. If the facility is selecting CCRS as the method of compliance for impingement, design drawings are not required for a CWIS that pre-dates the CWA if the engineering schematics of the CWIS no longer exist. Include an explanation with the above described narrative description.

3. SOURCE WATER PHYSICAL DATA

- a. Table 21 must be completed with the following information regarding the CWIS source waterbody (this includes primary and make-up CWIS(s))
 - Source waterbody Provide the name(s) of the source water for the CWIS(s).
 - Mean annual flow Enter the mean annual flow of the source waterbody(s).
 - Determination source Provide the data source used to determine the mean annual flow of the source waterbody(s).
- b. Include the following information as an attachment to the application and provide the attachment number in the space provided in the application.
 - i. A narrative description of the source water for each CWIS, including areal dimensions, depths, salinity and temperature regimes, and other documentation that supports your determination of the waterbody type where each cooling water intake structure is located.

- ii. A narrative description of the source waterbody's hydrological and geomorphological features.
- iii. Scaled drawings showing the physical configuration of all source water bodies used by the facility, including the source waterbody's hydrological and geomorphological features
- iv. A description of the methods used to conduct any physical studies to determine your intake's area of influence within the waterbody and the results of such studies.

4. OPERATIONAL STATUS

a. Indicate by checking **yes** or **no** if this application is for a power production or steam generation facility.

If you checked **yes**, include the following information as an attachment to the application, and provide the attachment number in the space provided in the application. Otherwise proceed to item b.

- i. A description of the operating status of each individual unit, including age of each unit, capacity utilization rate (or equivalent), for the previous five years (a minimum of 60 months)
- ii. A description of any extended or unusual outages that significantly affect current data for flow, impingement, entrainment, or other factors
- iii. Identify of any operating unit with a capacity utilization rate of less than 8 percent averaged over a block contiguous period of two-year (a minimum of 24 months)
- iv. Describe any major upgrades completed within the last 15 years, including but not limited to boiler replacement, condenser replacement, turbine replacement, or changes to fuel type

b. Process Units

- i. Indicate by checking **yes** or **no** if this application is for a facility which has process units that use cooling water other than for power production or steam generation.
- ii. If this is an application for a facility which has process units that use cooling water other than for power production or steam generation, indicate by checking **yes** or **no** if the facility uses or intends to use reductions in flow or changes in operations to meet the requirements of 40 CFR 125.94(c)?

If **yes**, include the following information as an attachment to the application, provide the attachment number in the space provided in the application. Otherwise, proceed to item c.

- 1. A description of individual production processes and product lines
- 2. A description of the operating status, including age of each line and seasonal operation
- 3. Describe any extended or unusual outages that significantly affect current data for flow, impingement, entrainment, or other factors
- 4. Describe any major upgrades completed within the last 15 years and plans or schedules for decommissioning or replacement of process units or production processes and product lines
- c. Indicate by checking **yes** or **no** if this application is for a nuclear power production facility. If you checked yes, include a description of completed, approved, or scheduled upgrades and Nuclear Regulatory Commission relicensing status of each unit at the facility as an attachment and provide the attachment number in the space provided in the application.
- d. Indicate by checking **yes** or **no** if this application is for a manufacturing facility. If you checked yes, include descriptions of current and future production schedules and any plans or schedules for any new units planned within the next five years (a minimum of 60 months) as an attachment and provide the attachment number in the space provided in the application.

INSTRUCTIONS FOR INDUSTRIAL WORKSHEET 11.1 IMPINGEMENT MORTALITY

This worksheet **is required** for any TPDES permit application if the facility withdraws or proposes to withdraw surface water for cooling purposes.

Complete one copy of this worksheet for each individual CWIS the facility uses or proposes to use. Completion of items 2 and 3 below satisfy application requirements in 40 CFR § 122.21(r)(6).

Enter the CWIS ID No. into the space provided in the application. The CWIS ID number(s) should correspond to the CWIS(s) identified on the USGS topographic map provided for Worksheet 11.0, item 1.b. If the facility does not withdraw or propose to withdraw surface water for cooling purposes through a CWIS, enter N/A and stop here.

1. APPLICABILITY

- a. Indicate by checking **yes** or **no** if the facility withdraws or proposes to withdraw water for cooling purposes from Waters of the United States that meets the definition in 40 CFR § 122.2.
 - If **no**, include the following information as an attachment to the application and provide the attachment number in the space provided in the application. If **yes**, proceed to **item c**.
 - i. A brief description of the source water the facility withdraws or proposes to withdraw water for cooling purposes.
 - ii. Supporting documentation for the above description.
- b. Indicate by checking **yes** or **no** if the waterbody from which the facility withdraws or proposes to withdraw water for cooling purposes is a man-made impounded waterbody originally constructed for cooling purposes.
 - If **no**, continue. If **yes**, include a copy of the CWA Section 404 permit or other supporting project documentation as an attachment, provide the attachment number in the space provided in the application, and continue.
- c. Indicate by checking **yes** or **no** if the CWIS has a design intake flow ≥ 2 MGD and continue.
- d. Indicate by checking **yes** or **no** if the facility uses ≥25% of the total water withdrawn by the CWIS for cooling purposes (average monthly basis) and continue.
- e. Indicate by checking **yes** or **no** if the CWIS withdraws water from a WOTUS with a federally listed threatened or endangered species or critical habitat designation.

If you answered **no** to questions **2.b.**, **2.c.**, **or 2.d**, stop here and proceed to Worksheet 11.3. If you answered **yes** to questions **2.b.**, **2.c.**, **and 2.d**, complete the rest of this worksheet.

2. IMPINGEMENT COMPLIANCE TECHNOLOGY OPTION SELECTION

Indicate with a checkmark the method of compliance with the Impingement Mortality Standard selected for the CWIS and continue.

If you selected 0.5 ft/s Through-Screen Design Velocity or existing offshore velocity cap as the method of compliance, proceed directly to Worksheet 11.3; otherwise, continue to section 3.

3. IMPINGEMENT COMPLIANCE TECHNOLOGY INFORMATION

Complete the following sections based on the selection made for item 1 above. Complete only the sections with apply to your facility CWIS.

a. CCRS

- Indicate with a checkmark if the CWS meets the definition of CCRS located at 40 CFR 125.91(c) and provide a response to the questions within this section.
 - i. Indicate by checking **yes** or **no** if the facility uses or proposes to use a CWIS to replenish water losses to the CWS.

If **no**, proceed to **item ii**. If **yes**, provide the following information as an attachment and continue

Attachment:

- 1. Provide the CWIS ID. The CWIS ID(s) should correspond to the CWIS(s) identified on the USGS map provided for Worksheet 11.0, item 1.b.
- 2. Previous year (a minimum of 12 months) of intake flow data, measured at a frequency of 1/day for any CWIS used for make-up intake flows to replenish cooling water losses, excluding intakes for losses due to blowdown, drift, or evaporation
- 3. A detailed narrative description of any physical or operational measures taken to minimize make-up withdraws.

Note: You do not need to complete a separate Worksheet 11.1 for each CWIS listed in this section.

ii. Indicate by checking yes or no if the facility uses or proposes to use cooling towers.

If **no**, proceed to Worksheet 11.2. If **yes**, complete the rest of the section and proceed to Worksheet 11.3.

- 1. Enter the average number of COCs prior to blowdown for each cooling tower into Table 22. Additionally, provide COC monitoring data for the previous year (a minimum of 12 months) for each cooling tower, measured at a frequency of 1/day, to support as an attachment to the application and include the attachment number in the space provided in the application.
- 2. Enter the calculated number of COCs that each cooling tower can accomplish prior to exceeding permitted effluent limitations into Table 23.
- b. 0.5 ft/s Through Screen Actual Velocity

Provide intake flow measurement monitoring data for the previous year (a minimum of 12 months), taken at a frequency of 1/day, as an attachment and include the attachment number in the space provided in the application. Continue to Worksheet 11.3.

c. Modified traveling screens

Provide the following information as an attachment to the application and include the attachment number in the space provided in the application.

- i. A site-specific impingement technology performance optimization study.
- ii. Biological sampling data from the previous two years (a minimum of 24 months).
- iii. A narrative description of the biological data collection methods.

Continue to Worksheet 11.2.

d. System of technologies or impingement mortality performance standard

Provide the following information as an attachment to the application and include the attachment number in the space provided in the application.

- i. A description of the system of technologies used or proposed for use by the facility to achieve compliance with the impingement mortality standard.
- ii. A site-specific impingement technology performance optimization study
- iii. Biological sampling data from the previous two years (a minimum of 24 months).

iv. A description of the biological data collection methods.

Continue to Worksheet 11.2.

e. Reuse of other water for cooling purposes

Include any supplemental information to Worksheet 11.0, item 2.b.iv. as an attachment to the application and provide the attachment number in the space provided in the application. Continue to Worksheet 11.3.

f. De minimis rate of impingement

Provide the following information and proceed to Worksheet 11.3.

- i. Provide monitoring data from the previous year (a minimum of 12 months) of intake flow measured at a frequency of 1/day on days of operation as an attachment to the application and include the attachment number in the space provided in the application.
- ii. If the rate of impingement caused by the CWIS is extremely low (as an organism or age-one equivalent count), include supplemental information to Worksheet 11.0, item 2.b.vi. to support as an attachment to the application and provide the attachment number in the space provided in the application.

This information should take into account factors such as the CWIS screen mesh opening size*, data collection, the zone of influence of the CWIS for clearly defined life stages and taxa of impinge-able organisms, and population abundances within the zone of influence of the CWIS.

*To clarify, where a CWIS screen has an opening size greater than 0.56 inches, the susceptibility to impingement of certain life stages of fish and shellfish should be accounted for when reporting information required under 40 CFR § 122.21(r), and likewise where opening sizes are less than 0.56 inches. In no case should an entrainable life stage of fish or shellfish be represented as impingeable or vice versa.

g. Low capacity utilization power-generation facilities

Provide data for the previous two years (a minimum of 24 months) of monthly utilization data for each operating unit as an attachment and include the attachment number in the space provided in the application. Continue to Worksheet 11.3.

INSTRUCTIONS FOR INDUSTRIAL WORKSHEET 11.2 SOURCE WATER DATA

This worksheet **is required** for all TPDES permit applications if the facility withdraws or proposes to withdraw surface water for cooling purposes.

Complete one copy of this worksheet for each source waterbody of a CWIS that the facility has selected an Impingement Mortality Technology Option described at 40 CFR § 125.94(c)(1) and (5)-(7). Completion of this Worksheet satisfies the application requirements in 40 CFR § 122.21(r)(4).

Enter the full name of source waterbody. If the facility does not withdraw or propose to withdraw surface water for cooling purposes through a CWIS, enter N/A and stop here.

1. SPECIES MANAGEMENT

The following is required for new and existing facilities.

- a. Indicate by checking **yes** or **no** if the facility has obtained an incidental take exemption or authorization for its cooling water intake structure(s) from the U.S. Fish and Wildlife Service or the National Marine Fisheries Service.
 - If **yes**, any information submitted in order to obtain that exemption or authorization may be used to satisfy the permit application information requirement of paragraph 40 CFR § 125.95(f). Include this information as an attachment to the application and provide the attachment number in the space provided in the application.
- b. Indicate by checking **yes** or **no** if the facility requesting a waiver from application requirements at 40 CFR § 122.21(r)(4) in accordance with 40 CFR § 125.95 for any CWIS(s) that withdraw from a manmade reservoir that is stocked and managed by a state or federal natural resources agency or the equivalent.
 - If **yes**, include a copy of the most recent management report, completed within the last three years, submitted to TPWD, or equivalent, as an attachment to the application and provide the attachment number in the space provided in the application. If the most recent management report is older than three years, provide a detailed justification for why the information contained within the report is still valid.
- c. Indicate by checking **true** or **faclse** if the facility has knowledge of any federally listed threatened or endangered species or critical habitat designations for the source waterbody. If the facility has no knowledge of federally listed threatened or endangered species or critical habitat designations for the source waterbody check true. If the facility has knowledge of federally listed threatened or endangered species or critical habitat designations for the source waterbody check false.

2. SOURCE WATER BIOLOGICAL DATA

The following is required for new and existing facilities.

- If the answer to **1.b.** above was **no**, provide responses to all the following items and proceed to Worksheet 11.3.
- If the answer to 1.b. was yes and 1.c. was true, proceed to Worksheet 11.3.
- If the answer to **1.b**. was **yes** and **1.c**. was **false**, provide a response for any item below that is not contained within the most recent TPWD, or equivalent, report as an attachment to the application and enter the attachment number in the space provided in the application and proceed to Worksheet **11.3**.

- a. A list of the data requested at 40 CFR 122.21(r)(4)(ii) through (vi) that are not available and efforts made to identify sources of the data.
- b. A list of species (or relevant taxa) in the vicinity of the CWIS and identify the following information regarding each species listed.
 - i. all life stages and their relative abundance,
 - ii. identification of all species and life stages that would be most susceptible to impingement and entrainment,
 - iii. forage base,
 - iv. significance to commercial fisheries,
 - v. significance to recreational fisheries,
 - vi. primary period of reproduction,
 - vii. larval recruitment, and
 - viii. period of peak abundance for relevant taxa.
- c. Data representative of the seasonal and daily activities (e.g., feeding and water column migration) of biological organisms in the vicinity of the cooling water intake structure.
- d. Identify and list all threatened, endangered, and other protected species that might be susceptible to impingement and entrainment at your cooling water intake structures.
- e. Documentation of any public participation or consultation with federal or state agencies undertaken and provide an attachment number.

The following is required for existing facilities only:

- f. Identify any protective measures and stabilization activities that have been implemented, and provide a description of how these measures and activities affected the baseline water condition in the vicinity of the intake.
- g. A list of fragile species, as defined at 40 CFR 125.92(m), at the facility. The applicant need only identify those species not already identified as fragile at 40 CFR 125.92(m).

Note: New units at an existing facility are not required to resubmit this information if the cooling water withdrawals for the operation of the new unit are from an existing intake.

INSTRUCTIONS FOR INDUSTRIAL WORKSHEET 11.3 COMPLIANCE WITH ENTRAINMENT MORTALITY STANDARD

This worksheet **is required** for all TPDES applications if the facility withdraws or proposes to withdraw surface water for cooling purposes.

Complete one copy of this worksheet for each individual CWIS the facility uses or proposes to use. Completion of this Worksheet satisfies the application requirements in 40 CFR § 122.21(r)(7) and (9)-(13).

Enter the CWIS ID No. into the space provided in the application. The CWIS ID number(s) should correspond to the CWIS(s) identified on the USGS map provided for Worksheet 11.0, item 1.b. If the facility does not withdraw or propose to withdraw surface water for cooling purposes through a CWIS, enter N/A and stop here.

1. APPLICABILITY

Indicate by checking **yes** or **no** if the AIF of the CWIS is greater than, or equal to, 125 MGD.

- If no, complete item 2 and stop.
- If **yes** and the facility is **seeking a waiver** from application requirements in accordance with 40 CFR § 125.95 for any CWIS(s) that withdraw from a man-made reservoir that is stocked and managed by a state or federal natural resources agency or the equivalent, complete item 2 and stop.
- If **yes** and the facility is **not seeing a waiver** from application requirements in accordance with 40 CFR § 125.95, complete item 2 and provide any required studies listed in item 3. For any required studies in section 3 that are not complete, provide a detailed explanation for the delay and an anticipated schedule for completion and submittal.

2. EXISTING ENTRAINMENT PERFORMANCE STUDIES

Include any previously conducted studies or studies obtained from other facilities addressing technology efficacy, through-facility entrainment survival, and other entrainment studies with the application. This information must include a description of each study, together with underlying data, and a summary of any conclusions or results. Enter the attachment number in the space provided in the application. Completion of this section satisfies the application requirements in 40 CFR § 122.21(r)(7).

Note: Any studies conducted at other locations must include an explanation as to why the data from other locations are relevant and representative of conditions at your facility. In the case of studies more than 10 years old, the applicant must explain why the data are still relevant and representative of conditions at the facility and explain how the data should be interpreted using the definition of entrainment at 40 CFR 125.92(h).

Additional guidance for Entrainment Studies <Link>

3. FACILITY ENTRAINMENT PERFORMANCE STUDIES

Important: Before completing the items below, note that if a facility has requested an application requirements waiver under 40 CFR § 125.95, then the facility should consider whether initiation or completion of the following items is appropriate at this time. If a waiver has not been requested or is not applicable to the facility, then any CWIS withdrawing 125 MGD from a WOTUS on an AIF basis is required to complete the following items.

a. Provide an entrainment characterization study, as described at 40 CFR § 122.21(r)(9), as an attachment to the application and enter the attachment number in the space provided in the application.

- b. Provide a comprehensive feasibility study, as described as 40 CFR § 122.21(r)(10), as an attachment to the application and enter the attachment number in the space provided in the application.
- c. Provide a benefits valuation study, as described as 40 CFR § 122.21(r)(11), as an attachment to the application and enter the attachment number in the space provided in the application.
- d. Provide a non-water quality environmental and other impacts study, as described as 40 CFR § 122.21(r)(12), as an attachment to the application and enter the attachment number in the space provided in the application.
- e. Provide a peer review analysis, as described as 40 CFR § 122.21(r)(13), as an attachment to the application and enter the attachment number in the space provided.

